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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/768,158	01/30/2004	Inmaculada Silos-Santiago	MPI03-012P1RNOMNIM	6099

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EXAMINER	
LIU, SAMUEL W	

ART UNIT	PAPER NUMBER
1653	

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/768,158	SILOS-SANTIAGO ET AL.	
	Examiner	Art Unit	
	Samuel W. Liu	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1-7 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-7 is/are pending in the application.

4a) Of the above claim(s) *none* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-7 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/14/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of the claims

Claims 1-7 are pending.

The amendment filed 5/5/06 which amend claim 1 and cancels claims 8-23 has been entered.

Election/Restrictions

Applicants' election (filed 5/5/06) of Group I, claims 1-7 without traverse is acknowledged. Pending claims 1-7 are under examination to the extent that they are drawn to the elected invention.

IDS

The references cited in the IDS filed 1/14/05 have been considered by Examiner.

Specification Objection

The disclosure is objected to because of the following informalities:

On page 2, paragraph [004], line 9, "CNS" should be spelled out for the first instance of use.

Claim Rejections - 35 USC § 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 is indefinite in the recitation "*or a cell comprising the polypeptide*" because the "cell" is not a polypeptide; does the recitation refer to a cytoplasm polypeptide?

Claim Rejections - 35 USC § 112, first paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the method of identifying a compound capable of treating a pain comprising contacting said compound to be tested with a polypeptide of SEQ ID NO:2 or a polypeptide encoded by nucleotide sequence of SEQ ID NO:1, does not reasonably provide enablement for the method thereof comprising contacting said compound with a polypeptide comprising an amino acid sequence which has only 95% sequence identity with the full-length SEQ ID NO:2.

Factors to be considered in determining whether undue experimentation is required, are summarized in Ex parte Forman, 230 USPQ 546(BPAI 1986). They include the nature of the invention, the state of the art, the relative skill of those in the art, the amount of direction or guidance disclosed in the specification, the presence or absence of working examples, the predictability or unpredictability of the art, the breadth of the claims, and the quantity of experimentation which would be required in order to practice the invention as claimed.

(1) The scope of the claims/(2) The nature of the invention:

The claim 1 as written is broadly drawn to a method of identifying a compound capable of treating pain comprising contacting said compound with a polypeptide variant which has 95% sequence identity to the amino acid sequence of SEQ ID NO:2; this 5% structural variation encompasses a large number of variants including genetic allelic variants (see paragraph [00256]) and recombinantly produced mutations (see paragraph [00153]). The variants can be screened based upon sulfotransferase activity (claim 1, item i). Sulfotransferase represents a superfamily of enzymes catalyzing sulfation of substrate molecules, e.g., various xenobiotics, structure and function of the members of the family are diversed (see review article of Nagata et al. (2004) *Annu. Rev. Pharmacol. Toxicol.* 40, 159-176). Of the members, estrogen sulfotransferase which involves in various estrogen actions, e.g., estrogen-dependent tumor-genesis in vivo (see Nakamura et al. (2003) *Am. J. Pathol.* 163, 1329-1339).

The specification does not provide sufficient information as to that any variants which has 5% structural alteration from instant SEQ ID NO:2 full-length polypeptide, which has corresponding the sulfotransferase activity, have capability of treating pain disorder. The specification does not provide working example in this regard. It is of note that the Examples 1 and 2 set forth on pages 116-117 only discuss experimental procedure of reverses transcription PCR-based approach for detecting mRNA in general, but do not specifically address the relationship between and said sulfotransferase activity and the full-length polypeptide of SEQ ID NO:2 or/and the structural variants thereof. The specification is silent in teaching as to use of the sulfotransferase activity for screening for and charactering the variant polypeptides which are capable of treating the pain disorder. Hence, characterization of active variants requires undue experimentation,

and therefore would render the claims so broad that the scope of claims is outside the bounds of the enablement.

(3) The unpredictability of the art:

There is insufficient guidance as to how to identify or characterize the variant polypeptides employed in the claimed method based on the sulfotransferase activity. It has been reported that antagonist (e.g., picrotoxin) of γ-aminobutyric acid (GABA)-A receptor induce pain or pain-like behavior (see Oliveras et al. (1996) *Physiol. Behav.* 60, 1425-1434). Majewska et al. (*Brain Res.* (1990) 526, 143-146) show that catalytic product of an active dehydroepiandrosterone sulfotransferase, i.e., neurosteroid dehydroepiandrosterone (a catalytic product of sulfotransferase) is an antagonist of the GABA-A receptor in rat brain synaptosomal membrane, indicating that it induces pain but does not treat pain. Hence, sulfotransferase enzymatic activity per se is not considered to be proportional to the pain treatment; and thus, a compound that effects activity of the variant polypeptide having the sulfotransferase activity does not necessarily possess capability of treating pain disorder or condition. Thus, the outcome of practicing the claimed method using the variant polypeptide that has said activity is unpredictable.

(4) The state of the prior art:

The general knowledge and level of skilled in the art do not supplement the omitted description because specific, not general, guidance is what is needed. Since the disclosure fails to describe common attribute and characteristics that identify the variant polypeptides of SEQ ID NO:2. The specification needs to provide sufficient guidance to be considered enabling for the claimed invention.

(5) The quantity of experimentation necessary:

In the absence of working examples with regard to the genus stated above, unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims, it would take undue trials and errors to practice the claimed invention. The quantity of experimentation would be large and unpredictable. One skilled in the art would be required to carry out an undue experimentation for screening and characterizing the variant polypeptides thereof.

(6) The relative skill of those in the art:

The general knowledge and level of skill in the art do not supplement the omitted description with respect to a large number of the above-mentioned variant polypeptides. In view of the preceding factors (1-5), the level of skill in this art is high and requires at least a molecular biologist with several years of experience in mutagenesis, molecular biology as well as knowledge in recombinant technology and medicine. Yet, even with a level of skill in the art as those mentioned in precedence, predictability of the results is still highly variable. An unduly level of skill is needed for the skilled artisan in order to make and characterize the variant polynucleotides and the subsequences thereof.

Reasonable correlation must exist between the scope of the claims and scope of the enablement set forth. In view of the quantity of experimentation necessary the limited working examples, the nature of the invention, the state of the prior art, the unpredictability of the art and the breadth of the claims, it would take undue trials and errors to practice the claimed invention. Thus, the amount and level of experimentation needed is undue.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Wei Liu whose telephone number is 571-272-0949. The examiner can normally be reached from 9:00 a.m. to 5:00 p.m. on weekdays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber, can be reached on 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 703 308-4242 or 703 872-9306 (official) or 703 872-9307 (after final). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-4700.

JON WEBER
SUPERVISORY PATENT EXAMINER

Samuel W. Liu, Ph.D.
Art Unit 1653, Examiner
May 18, 2006